

15U410

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Name:.....

Reg. No.....

FOURTH SEMESTER B.Sc. DEGREE EXAMINATION, MAY 2017

(CUCBCSS-UG)

Chemistry - Core Course

CC15U CHE4 B04 - ORGANIC CHEMISTRY I

(2015 Admission)

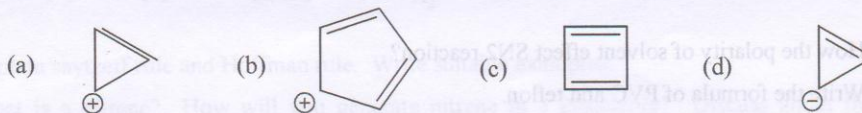
Time: Three Hours

Maximum: 80 Marks

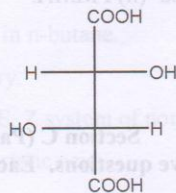
Section A (One word)

Answer all questions. Each question carries 1 mark

- Which of the following compounds show metamerism? (a) 1-chloro-2-butanone and 3-chloro-2-butanone (b) diethylether and methylpropylether (c) 2-butanol and 1-butanol (d) propanone and propanal
- The structure of D(+) glycerinaldehydes is
- Among the following the aromatic compound is.....



- Which of the following alkyl groups has the maximum + I effect?
(a) CH_3 - (b) $(\text{CH}_3)_2\text{CH}$ - (c) $(\text{CH}_3)_3\text{C}$ - (d) CH_3CH_2 -
- When acetylene is passed through alkaline KMnO_4 solution is formed
- Pd deposited over BaSO_4 is known as.....
- The IUPAC name of $\text{CH}_3\text{C}(\text{CH}_3)_2\text{-CH}_2\text{-CH=CH}_2$ is
- Which of the following is not a nucleophile?
(a) CN^- (b) H_2O (c) BF_3 (d) carbanion
- In the compound A, configuration at C_2 and C_3 atoms are.....



A

(1)

Turn over

10. Propyne and propene can be distinguished by.....

- (a) conc. H_2SO_4 , (b) Br_2 in CCl_4 (c) dil. H_2SO_4 (d) AgNO_3 in ammonium

(1x10=10 marks)

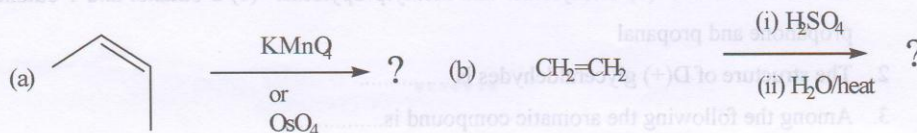
Section B (Short Answer)

Answer any ten questions. Each question carries 2 marks

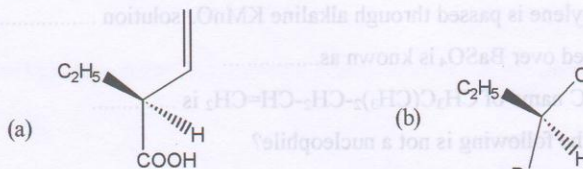
11. Explain why phenol is more acidic than cyclohexanol?
12. Explain the term hyperconjugation.
13. Calculate the angle of strain in cyclobutane.
14. Draw the chair and boat conformation of cyclohexane.
15. Predict the structure of alkene which would give two molecules of ethanol on ozonolysis.

Explain.

16. Complete the following reaction.



17. How the polarity of solvent effect $\text{S}_\text{N}2$ reaction?
18. Write the formula of PVC and teflon.
19. Why nitration of benzene give only mononitro benzene?
20. Assign R and S configuration of the following



21. Write the preparation of (i) PVC and (ii) PMMA.
22. Define the term vulcanization.

(10x2=20 marks)

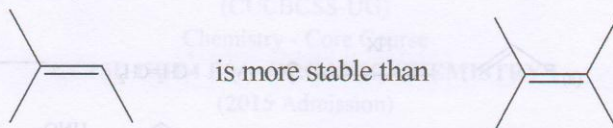
Section C (Paragraph)

Answer any five questions. Each question carries 6 marks

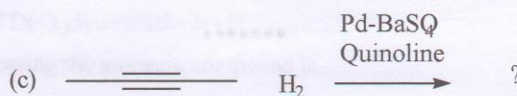
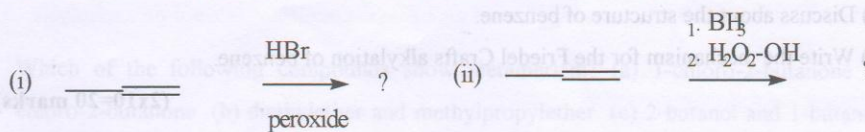
23. What is meant by resonance? Draw the resonance structures of phenol and nitrobenzene.

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24. Complete and rationalize the following on the basis of hyperconjugation



25. Explain (a) Wurtz reaction (b) Corey-House reaction. What is the significance of Corey-House reaction over Wurtz reaction
26. Explain Baeyer's strain theory. What are limitations of Baeyer theory.



27. Explain saytzeff rule and Hoffman rule. Write suitable examples.
28. What is a nitrene? How will you generate nitrene in a laboratory? Discuss about their stability and reaction
29. What is diastereomerism? Explain with suitable examples and how will you differentiate them from enantiomers?
30. Explain aromaticity in carbocycles and heterocycles on the basis of Huckel's rule

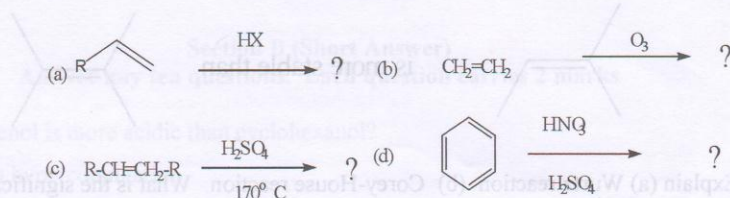
(5x6=30 marks)

Section D (Essay)

Answer any two questions. Each question carries 10 marks

31. (a) Explain conformational isomerism in n-butane.
(b) Discuss about Baeyer's strain theory.
32. (a) Discuss with suitable example the E, Z system of nomenclature of geometrical isomers
(b) Discuss the optical isomerism in tartaric acid

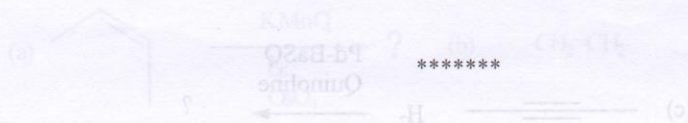
33. Predict product for the following reactions and explain the product formation with suitable mechanisms



34. (a) Discuss about the structure of benzene.

(b) Write the mechanism for the Friedel Crafts alkylation of benzene.

(2x10=20 marks)



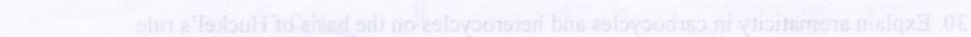

27. Explain Saytzeff rule and Hoffman rule. Write suitable examples.

28. What is a nitrene? How will you generate nitrene in a laboratory? Discuss about their stability and reaction.

29. What is diastereomerism? Explain with suitable examples and how will you differentiate them from enantiomers?

30. Explain aromaticity in carbocycles and heterocycles on the basis of Huckel's rule.

(2x6=12 marks)

(a)  $\xrightarrow{\text{H}_2}$ (b)  $\xrightarrow{\text{H}_2}$

Section D (Essay)

Answer any two questions. Each question carries 10 marks.

31. (a) Explain conformational isomerism in n-butane.

(b) Discuss about Beyer's strain theory.

32. (a) Discuss with suitable example the E/Z system of nomenclature of geometrical isomers.

(b) Discuss the optical isomerism in tartaric acid and give example.

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Turn over